NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
B.Tech
SEM: III - THEORY EXAMINATION (2023-2024)
Subject: Object Oriented Programming

Time: 3 Hours   **Max. Marks: 100**

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

*1. This Question paper comprises of **three Sections -A, B, & C.** It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*

2. Maximum marks for each question are indicated on right -hand side of each question.

3. Illustrate your answers with neat sketches wherever necessary.

4. Assume suitable data if necessary.

5. Preferably, write the answers in sequential order.

6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A   20

1. Attempt all parts:-

1-a.   In which of the following form, data is stored in computer?   [CO1]   1

    (a)   Decimal

    (b)   Octal

    (c)   Hexadecimal

    (d)   Binary

1-b.   "break" is used to [CO1]   1

    (a)   exit from a program

    (b)   exit from the current loop

    (c)   Both of the above

    (d)   None of the above

1-c.   An inline function is expanded during _____[CO2]   1

    (a)   compile-time

    (b)   run-time

    (c)   never expanded

    (d)   end of the program

1-d.   The variable that are listed in the function's calls are called   [CO2]   1

    (a)   Actual parameter

    (b)   Declared parameter

    (c)   Passed parameter

(d)   None of them

1-e.   Which of the following is not a type of constructor? [CO3]   1

(a)   Copy constructor

(b)   Friend constructor

(c)   Default constructor

(d)   Parameterized constructor

1-f.   While using encapsulation, which among the following is possible?   [CO3]   1

(a)   Code modification can be additional overhead

(b)   Data member's data type can be changed without changing any other code

(c)   Data member's type can't be changed, or whole code have to be changed

(d)   Member functions can be used to change the data type of data members

1-g.   Single level inheritance is safer than _____ [CO4]   1

(a)   Multiple inheritance

(b)   Interfaces

(c)   Implementations

(d)   Extensions

1-h.   ………………. are also known as generic pointers, which refer to variables of any   1
        type. [CO4]

(a)   void pointer

(b)   null pointer

(c)   this pointer

(d)   base pointer

1-i.   The current version of UML is 3.0. [CO5]   1

(a)   TRUE

(b)   FALSE

1-j.   The base class for most stream classes is the _____ class. (CO5)   1

(a)   ios

(b)   out

(c)   in

(d)   app

2. Attempt all parts:-

2.a.   When do we use if-else statement?   [CO1]   2

2.b.   Explain the concept of typecasting.   [CO2]   2

2.c.   What is an interface?(CO3)   2

2.d.   What Is Inheritance?   [CO4]   2

2.e.   Explain Structural Modeling. [CO5]   2

SECTION-B   30

3. Answer any <u>five</u> of the following:-

3-a.   Define the switch statement. Also write the characteristics of switch statement. Write a menu driven program to simulate the calculator.   CO1   6

3-b.   WAP to check whether the entered number is prime or not. [CO1]   6

3-c.   List some benefits of OOPS. [CO2]   6

3-d.   Write a C++ Program to find Quotient and Remainder.   [CO2]   6

3.e.   What are the object oriented programming concept ? Explain.   [CO3]   6

3.f.   Discuss the example of a function template in C++:   [CO4]   6

3.g.   What does associations in a class diagram mean?   [CO5]   6

SECTION-C   50

4. Answer any <u>one</u> of the following:-

4-a.   Discuss different string handling functions available in C++.   [CO1]   10

4-b.   Differentiate between formatted and unformatted I/O. Discuss its different functions. [CO1]   10

5. Answer any <u>one</u> of the following:-

5-a.   Write a program to add, subtract, multiply and divide of two numbers by using a function in C++. [CO2]   10

5-b.   Write a C++ program involving the type conversion from one class type to another class.[CO2]   10

6. Answer any <u>one</u> of the following:-

6-a.   Explain the significance of static data and member functions in C++ with the help of an suitable example.[CO3]   10

6-b.   Write a C++ program demonstrating use of the pure virtual function with the use of base and derived classes. [CO3]   10

7. Answer any <u>one</u> of the following:-

7-a.   We want to calculate the total marks of each student of a class in Physics, Chemistry and Mathematics and the average marks of the class. The number of students in the class are entered by the user. Create a class named Marks with data members for roll number, name and marks. Create three other classes inheriting the Marks class, namely Physics, Chemistry and Mathematics, which are used to define marks in individual subject of each student. Roll number of each student will be generated automatically.(CO4)   10

7-b.   Explain function templates in C++. Write a program to find Largest among two numbers using function template [CO4]   10

8. Answer any <u>one</u> of the following:-

8-a.   Identify actors and use cases for the Online Airline Reservation systems. [CO5]   10

8-b.   Draw a Class diagram for issuing and returning books from library. [CO5]   10